AMENDMENTS

In the Claims

1.**(cancel)**

2.**(cancel)**

3.**(cancel)**

4.**(cancel)**

5.**(cancel)**

6.**(cancel)**

7.**(cancel)**

8.**(cancel)**

9.**(cancel)**

10.**(cancel)**

11.**(cancel)**

12.**(cancel)**

13.**(cancel)**

14.**(cancel)**

15.**(cancel)**

16.**(cancel)**

17.**(cancel)**

18.**(cancel)**

19.**(cancel)**

20.**(cancel)**

21.**(cancel)**

22.**(cancel)**

23.**(cancel)**

24.**(cancel)**

25.**(cancel)**

26.**(cancel)**

27.**(cancel)**

28.**(cancel)**

29.**(cancel)**

30.**(cancel)**

31.**(cancel)**

32.**(cancel)**

33.**(cancel)**

34.**(cancel)**

35.**(cancel)**

36.**(cancel)**

37.**(cancel)**

38.**(cancel)**

39.**(cancel)**

40.**(cancel)**

41.**(cancel)**

42.**(cancel)**

43.**(cancel)**

44.**(cancel)**

New Claims

45.**(new)** A method for noninvasive analysis of blood comprising the steps of:

irradiating blood in a big vein associated with an underside of a patient's tongue with radiation having at least one frequency or wavelength;

detecting a response from the blood irradiated in the irradiating step;

calculating a concentration of a blood component, a value of a blood parameter or a mixture or combination thereof from the response.

46.**(new)** The method of claim 45, further comprising the step of:

displaying the response, the concentration and/or the value from the calculating step.

47.**(new)** The method of claim 45, wherein the detecting step comprises the step of:

utilizing one or a combination of techniques selected from the group consisting of reflectance

technique, confocal technique, scanning confocal technique, polarization techniques, interferometry, optoacoustics, low coherence interferometry and reflectometry, techniques based on speckle measurements, fluorescence technique, Raman scattering technique, and two or multi-photon techniques.

48.(**new**) The method of claim 45, wherein the wavelength of the radiation is from about 200 nanometers to about 20 microns.

49.(**new**) The method of claim 45, wherein the radiation has a single wavelength or frequency or a plurality of wavelengths or frequencies.

50.(**new**) The method of claim 45, wherein the response corresponds to a concentration of hemoglobin in the blood and the wavelength of the radiation is selected from the group consisting of 548 nm, 568 nm, 587 nm, and 805 nm, from about 400 nm to about 640 nm and above about 1120 nm.

51.(**new**) The method of claim 45, wherein the blood component is selected from the group consisting of hematocrit, hemoglobin, glycosylated hemoglobin, hemoglobin and glycosylated hemoglobin, glucose, cholesterol, oxy-hemoglobin, deoxy-hemoglobin, and carboxy-hemoglobin, and an exogenous substance.

52.(**new**) The method of claim 51, wherein the exogenous substance is selected from the group consisting of a drug, a dye or other reporter in a molecular state or a particle made of a liquid, a gas, or a solid, a combination of a liquid, a gas, or a solid, and a layered structure.

53.(**new**) The method of claim 51, wherein the exogenous substance is selected from the group consisting of indocyanine green and Evans blue.

54.(**new**) The method of claim 52, wherein the exogenous substance are particles having a size from about 0.1 nanometer to about 10 microns.

55.(**new**) The method of claim 45, wherein the radiation is selected from the group consisting of microwave radiation, radiofrequency radiation, ultrasound radiation, and low-frequency electromagnetic radiation.

56.(**new**) The method of claim 45, further comprising:

performing the detecting step in the presence of a static electric or magnetic field.

57.(**new**) An apparatus for noninvasive blood analysis comprising:

a probe including a tip having a radiation outlet and a response inlet, where the probe tip is adapted to be placed in proximity to or in contact with a surface of a tissue over a big vein associated with an underside of a patient's tongue;

a light generation/delivery system including a light source capable of generating at least one frequency of light, and a light conduit interconnecting the light source with the radiation outlet, where the system is adapted to deliver radiation to blood in the big vein; and

a detector/analyzer system including a detector adapted to detect a response from the irradiated blood via the response inlet and an analyzer adapted to convert the detected response into a concentration of a blood component and/or a value of a parameter of the blood.

58.(**new**) The apparatus of claim 57, further comprising:

a display adapted to display the response, the concentration, and/or the value.

59.(**new**) The apparatus of claim 57, wherein the wavelength of the radiation is from about 200 nanometers to about 20 microns.

59.(**new**) The apparatus of claim 57, wherein the radiation has a single wavelength or frequency or a plurality of wavelengths or frequencies.

60.(**new**) The apparatus of claim 57, wherein the detector is capable of detecting data derived from one or a combination of techniques selected from the group consisting of reflectance technique, confocal technique, scanning confocal technique, polarization techniques, interferometry, optoacoustics, low coherence interferometry and reflectometry, techniques based on speckle

measurements, fluorescence technique, Raman scattering technique, and two or multi-photon techniques.

61.(**new**) The apparatus of claim 57, wherein the response corresponds to hemoglobin and the wavelength is selected from the group consisting of 548 nm, 568 nm, 587 nm, 805 nm, from about 400 nm to about 640 nm and above about 1120 nm.

62.(**new**) The apparatus of claim 57, wherein the blood component is selected from the group consisting of hematocrit, hemoglobin, glycosylated hemoglobin, hemoglobin and glycosylated hemoglobin, glucose, cholesterol, oxy-hemoglobin, deoxy-hemoglobin, and carboxy-hemoglobin, and an exogenous substance.

63.(**new**) The apparatus of claim 62, wherein the exogenous substance is selected from the group consisting of a drug, a dye or other reporter in molecular state or a particle made of liquid, gas, or solid material including polymer, metal, semiconductor, dielectric, or a combination of liquid, gas, or solid materials, and a layered structure.

64.(**new**) The apparatus of claim 62, wherein the exogenous substance is selected from the group consisting of indocyanine green and Evans blue.

65.(**new**) The apparatus of claim 63, wherein the exogenous substance are particles having a size from about 0.1 nanometer to about 10 microns.

66.(**new**) The apparatus of claim 57, wherein the radiation is selected from the group consisting of microwave radiation, radiofrequency radiation, ultrasound radiation, and low-frequency electromagnetic radiation.

67.(**new**) The apparatus of claim 57, further comprising:

a device for generating a static electric or magnetic field.

68.(**new**) An apparatus for noninvasive blood analysis comprising:

right side and left side sections adapted to engage one or more teeth on each of a right side and left side of a patient's jaw,

two transitions section extending downwardly from each of the side sections,

a middle section interposed between the two transitions sections adapted to be proximate to or in contact with an underside of a patient's tongue, where the middle section includes;

a emitter, and

a receiver,

where the emitter and the receiver are proximate or in contact with a surface of a tissue over a big vein associated with an underside of the patient's tongue;

a light generation/delivery system including a light source capable of generating at least one frequency of light, and a light conduit interconnecting the light source with the radiation outlet, where the system is adapted to deliver radiation to blood in the big vein; and

a detector/analyzer system including a detector adapted to detect a response from the irradiated blood via the response inlet and an analyzer adapted to convert the detected response into a concentration of a blood component and/or a value of a parameter of the blood.

69.(**new**) The apparatus of claim 59, further comprising:

a plurality of emitters and receivers, located in pairs on a right hand side and a left side of the middle section.

70.(**new**) The apparatus of claim 68, further comprising:

a display adapted to display the response, the concentration, and/or the value.

71.(**new**) The apparatus of claim 68, wherein the wavelength of the radiation is from about 200 nanometers to about 20 microns.

71.(**new**) The apparatus of claim 68, wherein the radiation has a single wavelength or frequency or a plurality of wavelengths or frequencies.

72.(**new**) The apparatus of claim 68, wherein the detector is capable of detecting data derived from one or a combination of techniques selected from the group consisting of reflectance technique,

confocal technique, scanning confocal technique, polarization techniques, interferometry, optoacoustics, low coherence interferometry and reflectometry, techniques based on speckle measurements, fluorescence technique, Raman scattering technique, and two or multi-photon techniques.

73.(**new**) The apparatus of claim 68, wherein the response corresponds to hemoglobin and the wavelength is selected from the group consisting of 548 nm, 568 nm, 587 nm, 805 nm, from about 400 nm to about 640 nm and above about 1120 nm.

74.(**new**) The apparatus of claim 68, wherein the blood component is selected from the group consisting of hematocrit, hemoglobin, glycosylated hemoglobin, hemoglobin and glycosylated hemoglobin, glucose, cholesterol, oxy-hemoglobin, deoxy-hemoglobin, and carboxy-hemoglobin, and an exogenous substance.

75.(**new**) The apparatus of claim 74, wherein the exogenous substance is selected from the group consisting of a drug, a dye or other reporter in molecular state or a particle made of liquid, gas, or solid material including polymer, metal, semiconductor, dielectric, or a combination of liquid, gas, or solid materials, and a layered structure.

76.(**new**) The apparatus of claim 74, wherein the exogenous substance is selected from the group consisting of indocyanine green and Evans blue.

77.(**new**) The apparatus of claim 75, wherein the exogenous substance are particles having a size from about 0.1 nanometer to about 10 microns.

78.(**new**) The apparatus of claim 68, wherein the radiation is selected from the group consisting of microwave radiation, radiofrequency radiation, ultrasound radiation, and low-frequency electromagnetic radiation.

79.(**new**) The apparatus of claim 68, further comprising:

a device for generating a static electric or magnetic field.